

WHAT IS CLAIMED IS:

1 1. A method of controlling the operation of a vehicle with a radio
2 communications circuit configured to communicate with a vehicle operator's handheld
3 radio frequency transponder, the method comprising the steps of:
4 a. providing the vehicle having the bi-directional radio
5 communications circuit;
6 b. providing the radio transponder to the vehicle operator;
7 c. generating electromagnetic radiation from the radio
8 communications circuit;
9 d. bringing the transponder within the range of the
10 electromagnetic radiation;
11 e. energizing the transponder by the electromagnetic radiation;
12 transmitting first information from the transponder after the step of energizing the
13 transponder;
14 f. receiving at the reader circuit the first information transmitted
15 by the transponder; and
16 g. controlling at least one subsystem of the vehicle in response to
17 the first information received at the transponder.

1 2. The method of Claim 1, wherein the step of providing the radio
2 transponder includes the step of providing the radio transponder with a low-power
3 microcontroller configured to receive its operating power from the electromagnetic
4 radiation.

1 3. The method of Claim 2, wherein the step of providing the radio
2 transponder includes the step of molding the radio transponder into a vehicle ignition
3 key.

1 4. The method of Claim 2, wherein the step of providing a radio
2 transponder includes the step of embedding the radio transponder in a hand-held card.

1 5. The method of Claim 4, wherein the step of providing a radio
2 transponder includes the step of mechanically bonding the radio transponder to a
3 vehicle ignition key.

1 6. The method of Claim 1, wherein the step of transmitting the first
2 information includes the step of transmitting a digital value that identifies the
3 operator.

1 7. The method of Claim 6, wherein the step of controlling at least one
2 subsystem includes the step of comparing the digital value that identifies the operator
3 with a value previously stored in the vehicle's controller.

1 8. The method of Claim 7, wherein the step of controlling at least one
2 subsystem of the vehicle includes the step of disabling the operation of one or more of
3 the following subsystems:

- 4 a. a fuel pump of the vehicle;
- 5 b. a hydraulic system of the vehicle;
- 6 c. a starting system of the vehicle;
- 7 d. an electrical system of the vehicle;
- 8 e. a transmission of the vehicle; and
- 9 f. an engine of the vehicle.

1 9. A method of controlling the operation of a vehicle in response to data
2 received from a radio transponder, the vehicle having a short-range radio transceiver
3 configured to selectively energize the transponder when it is in close proximity to an
4 operator's station of the vehicle, the method including the steps of:
5 a. storing data in the transponder indicative of the operator;
6 b. bringing the transponder into close proximity of the operator's
7 station of the vehicle;
8 c. generating by the vehicle of an electromagnetic field sufficient
9 to energize the transponder;
10 d. downloading from the transponder to the vehicle the data
11 indicative of the operator;

- 12 e. comparing by the vehicle of the downloaded data indicative of
13 the operator with data previously stored in the vehicle; and
14 f. limiting the functionality of the vehicle based upon the step of
15 comparing.

1 10. The method of Claim 9, wherein the data indicative of the operator
2 includes data indicative of the vehicle operational parameters.

1 11. The method of Claim 10, wherein the operational parameters include a
2 distance traveled.

1 12. The method of Claim 10, wherein the operational parameters include a
2 geographical area in which the vehicle may be driven.

1 13. The method of Claim 10, wherein the operational parameters includes
2 times of the day during which operation is permitted.

1 14. The method of Claim 10, wherein the operational parameters include
2 an elapsed time of operation.

1 15. The method of Claim 10, wherein the operational parameters include a
2 maximum engine load.

1 16. The method of Claim 10, wherein the operational parameters include a
2 maximum speed of the vehicle.

1 17. A system for controlling the operation of a vehicle comprising:

2 a. a portable radio transponder including a microcontroller and an
3 digital memory, wherein the digital memory includes data indicative of an operator of
4 a vehicle;

5 b. a vehicle further comprising:

6 i. a transponder reader circuit configured to transmit
7 electromagnetic radiation sufficient to energize and

8 enable the transponder to transmit the data at a
9 transponder radio frequency; and
10 ii. a control system configured to input the data from the
11 transponder reader circuit and to control operation of
12 the vehicle in response to the data.

1 18. The system for controlling the operation of a vehicle of Claim 17,
2 wherein the control system is configured to set a vehicle speed limit based upon the
3 data received from the transponder.

1 19. The system for controlling the operation of a vehicle of Claim 17,
2 wherein the control system is configured to set a maximum engine RPM based upon
3 the data received from the transponder.

1 20. The system for controlling the operation of a vehicle of Claim 17,
2 wherein the control system is configured to set a maximum engine load based upon
3 the data received from the transponder.

1 21. The system for controlling the operation of a vehicle of Claim 17,
2 wherein the control system is configured to disable the vehicle after a predetermined
3 amount of time of operation based upon the data received from the transponder.

1 22. The system for controlling the operation of a vehicle of Claim 17,
2 wherein the control system is configured to disable the vehicle if it travels outside a
3 predetermined geographical area of operation.

1 23. The system for controlling the operation of a vehicle wherein the
2 control system is configured to prevent the operation of the vehicle outside of
3 predetermined time intervals each day based upon the data received from the
4 transponder.